

FORM PTO-1390 REV. 5-93		US DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEYS DOCKET NUMBER P00,2002
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371			U.S. APPLICATION NO. (if known, see 37 CFR 1.5) 09/743892
INTERNATIONAL APPLICATION NO. PCT/DE99/01935	INTERNATIONAL FILING DATE 1 July 1999	PRIORITY DATE CLAIMED 13 July 1998	
TITLE OF INVENTION "DEVICE FOR THE LASER PROCESSING OF WORKPIECES"			
APPLICANT(S) FOR DO/EO/US Bernd-Friedrich SCHOLL, Lothar MÜLLER, Werner JUNG and Stefan DIETRICH			
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay. 4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. 5. <input checked="" type="checkbox"/> A copy of International Application as filed (35 U.S.C. 371(c)(2)) a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> has been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US) 6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. §371(c)(3)) a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). Items 11. to 16. below concern other document(s) or information included: 11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98; (PTO 1449, Prior Art, Search Report). 12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included. (SEE ATTACHED ENVELOPE) 13. <input checked="" type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 14. <input checked="" type="checkbox"/> A substitute specification. 15. <input type="checkbox"/> A change of power of attorney and/or address letter. 16. <input checked="" type="checkbox"/> Other items or information: a. <input checked="" type="checkbox"/> Submittal of Drawings b. <input checked="" type="checkbox"/> EXPRESS MAIL #EL 655302996US, dated January 16, 2001.			

09/743892

PCT/DE99/01935

P00,2002

17. ☒ The following fees are submitted:

CALCULATIONS

PTO USE ONLY

BASIC NATIONAL FEE (37 C.F.R. 1.492(a)(1)-(5):

Search Report has been prepared by the EPO or JPO \$860.00

International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) .. \$700.00

No international preliminary examination fee paid to USPTO (37 C.F.R. 1.482) but
international search fee paid to USPTO (37 C.F.R. 1.445(a)(2)) \$770.00Neither international preliminary examination fee (37 C.F.R. 1.482) nor international
search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO \$1040.00International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) and all
claims satisfied provisions of PCT Article 33(2)-(4) \$ 96.00**ENTER APPROPRIATE BASIC FEE AMOUNT =**

\$ 860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months
from the earliest claimed priority date (37 C.F.R. 1.492(e)).

\$

Claims

Number Filed

Number
Extra

Rate

Total Claims

2 - 20 =

X \$ 18.00

\$.00

Independent Claims

1 - 3 =

1

X \$ 80.00

\$

Multiple Dependent Claims

\$270.00 +

\$

TOTAL OF ABOVE CALCULATIONS =

\$ 860.00

Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must
also be filed. (Note 37 C.F.R. 1.9, 1.27, 1.28)

\$

SUBTOTAL =

\$ 860.00

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months
from the earliest claimed priority date (37 CFR 1.492(f)).

\$

+

TOTAL NATIONAL FEE =

\$ 860.00

Fee for recording the enclosed assignment (37 C.F.R. 1.21(h)). The assignment must be
accompanied by an appropriate cover sheet (37 C.F.R. 3.28, 3.31). \$40.00 per property

+

TOTAL FEES ENCLOSED =

\$ 860.00

Amount to be
refunded

\$

charged

\$

a. ☒ A check in the amount of \$ 860.00 to cover the above fees is enclosed.b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A
duplicate copy of this sheet is enclosed.c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
overpayment to Deposit Account No. 501519. A duplicate copy of this sheet is enclosed.NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be
filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

SIGNATURE

Schiff Hardin & Waite
Patent Department
6600 Sears Tower
Chicago, Illinois 60606

Steven H. Noll

NAME

28,982

Registration Number

- 1 -

IN THE UNITED STATES ELECTED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

"PRELIMINARY AMENDMENT"

5 APPLICANT: Bernd-Friedrich SCHOLL et al.

SERIAL NO.:

EXAMINER:

FILING DATE:

ART UNIT:

INTERNATIONAL APPLICATION NO.: PCT/DE99/01935

INTERNATIONAL FILING DATE: 1 July 1999

10 INVENTION: DEVICE FOR THE LASER PROCESSING OF WORKPIECES

Hon. Assistant Commissioner for Patents

Box PCT

Washington D.C. 20231

DEAR SIR:

15 Amend the above-identified international application before entry into the
national stage before the U.S. Patent & Trademark Office under 35 U.S.C. §371
as follows:

IN THE SPECIFICATION

20 Please substitute the specification in the file with the enclosed substitute
specification according to 37 CFR 1.125(b). Also, enclosed please find a marked-
up version of the specification, separate from the substitute specification, marked-
up to show all changes relative to the previous version of the specification.

IN THE DRAWINGS

Please amend the Figure to add English text for clarification as shown on the drawing copy marked in red attached to the Request for Approval of Drawing Changes filed simultaneously herewith.

5 **IN THE CLAIMS**

On substitute page 3, line 1, change "Patent Claims" to --We Claim:--.
Please cancel all claims without prejudice and add new claims 2, 3 as follows:

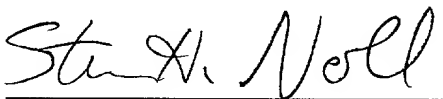
2. An apparatus for laser processing of workpieces with processing surfaces
lying diametrically opposite one another, said apparatus comprising:
- 10 two laser units directed towards one another, said laser units being capable
of simultaneous operation, said workpieces placed between the two laser units;
an internal beam deflection device for each of said two laser units, said
internal deflection device to deflect respective laser beams emitted from said laser
units on to regions of said workpieces to be processed; and
- 15 a movable carrier for moving said workpieces in to a radiation region of said
laser units, said workpieces being fixed to said movable carrier.
3. An apparatus according to claim 2, wherein said workpieces are plate-like
interconnect carriers laminated on both sides.

REMARKS

- 20 The foregoing amendments to the specification and claims under Article 41
of the Patent Cooperation Treaty place the application into a form for prosecution

before the U.S. Patent and Trademark Office under 35 U.S.C. §371. Accordingly,
entry of these amendments before examination on the merits is hereby requested.

Respectfully submitted,



Steven H. Noll (reg. no. 28,982)
Schiff Hardin & Waite
Patent Department
6600 Sears Tower
Chicago, Illinois 60606
Telephone: 312-258-5785

ATTORNEY FOR APPLICANT

5

10

SPECIFICATION

TITLE

APPARATUS FOR THE LASER PROCESSING OF WORKPIECES

BACKGROUND OF THE INVENTIONField of the Invention

The invention is directed to an apparatus for the laser processing of workpieces having processing surfaces lying diametrically opposite one another.

Description of the Prior Art

In the manufacture of fine surface structures, for example in printed circuit boards, it is known to structure conductive or cover layers with high precision using a laser beam. Given printed circuit boards laminated on both sides, the printed circuit board must be turned over and be brought into the working range of the laser unit a second time.

US 5,678,229 A has disclosed a laser cutting means for plates, whereby the workpiece is arranged between two laser units directed toward one another and whose optical axes are exactly aligned with one another, so that the displaceable guided plates can be given a clean parting cut.

JP 03142090 A has also discloses a laser drilling means for printed circuit boards, whereby the holes are generated by two laser devices whose laser beams given via fixed deflection mirrors likewise have their optical axes exactly aligned with one another. The printed circuit board must be correspondingly shifted for drilling other holes.

Similarly, JP 60177982 has disclosed a similar device for the simultaneous and both-sided marking of plates, whereby, however, the laser beams are adjusted relative to one another from both sides via a beam splitter and multiple, fixed deflection mirrors.

SUMMARY OF THE INVENTION

The invention is based on the object of enhancing the processing precision and shortening the processing duration.

5 This object is achieved by the invention where two laser units are directed toward one another. These units can be simultaneously operated. Each unit has a deflection device that deflects the laser beam to cover the area of the workpiece to be processed at any time. Since the two laser units can be controlled independently of one another, different patterns can be generated on the two sides without having to move the printed circuit board, as a result whereof the processing time is cut in half. Moreover, the turnover, change and adjustment outlay for processing the second printed circuit board side is eliminated. The position of the workpiece need only be acquired once. The two laser units can be pre-adjusted such that the processing patterns at both sides of the printed circuit board are congruent without differences.

10
15 In another embodiment of the present invention, different structures can be produced on the two sides of the printed circuit board without employing masks.

DESCRIPTION OF THE DRAWINGS

20 The illustrated Figure shows a schematic side view of a carrying frame 1 with two laser units 1, a workpiece 3 fashioned as printed circuit board and a movable carrier 4 fashioned as linear transport means whose transport direction proceeds perpendicular to the plane of the Figure.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

5 The laser unit 2 is composed of a laser beam generator 5 and of a deflection device 6 with which the laser beam can be deflected such in two coordinate directions that it is respectively perpendicular to the workpiece surface. The two laser units are arranged such above and below the workpiece 3 that their emitted beams are directed opposite one another. Both surfaces of the workpiece 3 cover the radiation region. These surfaces can then be simultaneously processed and be subsequently moved to such an extent by the movable carrier 4 that another processing area of the printed circuit board proceeds into the radiation region of the laser unit 2 or until the workpiece 10 3 has left the laser region.

15 The workpiece can, for example, be fashioned as normal printed circuit board wherein individual regions must be especially finely structured. However, it is also possible, for example, to employ a conductive film instead of the printed circuit board and to pull this past between the two deflection device 6 in steps. The workpieces 3 can also, for example, be fashioned as relatively small chip carriers and be fixed in a plurality of receptacles of a workpiece carrier that is provided with corresponding clearances for the passage of laser beams. In this case, the carrier 4 seizes the workpiece carrier and guides it such that the individual workpieces successively proceed into the laser beam region.

20 Although other modifications and changes may be suggested by those skilled in the art, it is the intention of the inventors to embody within the patent warranted hereon all changes and modifications as reasonably and properly come within the scope of their contribution to the art.

ABSTRACT OF DISCLOSURE

An apparatus for the laser processing of workpieces with shortened processing time. Two laser units that can be simultaneously operated are directed towards each other. Workpieces, for example printed circuit boards, are moved between the two laser units such that the two sides of the workpieces are simultaneously processed. As a result the processing time is considerably shortened.

1 PRTS

1

APPARATUS FOR THE LASER PROCESSING OF WORKPIECES

The invention is directed to an apparatus for the laser processing of workpieces having processing surfaces lying diametrically opposite one another.

In the manufacture of fine surface structures, for example in printed circuit boards, it is known to structure conductive or cover layers with high precision using a laser beam. Given printed circuit boards laminated on both sides, the printed circuit board must be turned over and be brought into the working range of the laser unit a second time.

The invention is based on the object of enhancing the processing precision and shortening the processing duration.

This object is achieved by the invention according to claim 1. Since the two laser units can be controlled independently of one another, different patterns can be generated on the two sides without having to move the printed circuit board, as a result whereof the processing time is cut in half. Moreover, the turnover, change and adjustment outlay for processing the second printed circuit board side is eliminated. The position of the workpiece need only be acquired once. The two laser units can be pre-adjusted such that the processing patterns at both sides of the printed circuit board are congruent without differences.

With the development according to claim 2, different structures can be produced on the two sides of the printed circuit board without employing masks.

The invention is explained in greater detail below on the basis of an exemplary embodiment shown in the drawing. The illustrated Figure 1 shows a schematic side view of a carrying frame 1 with two laser units 1, a workpiece 3 fashioned as printed circuit board and a movable carrier 4 fashioned as linear transport means whose transport direction proceeds perpendicular to the plane of the Figure.

The laser unit 2 is composed of a laser beam generator 5 and of a deflection means 6 with which the laser beam can be deflected such in two coordinate directions that it is respectively perpendicular to the workpiece surface. The two laser units are arranged such above and below the workpiece 3 that their emitted beams are directed opposite one another. Both surfaces of the workpiece 3 cover. [sic] These

can then be simultaneously processed and be subsequently moved to such an extent by the movable carrier 4 that another processing area of the printed circuit board proceeds into the radiation region of the laser unit 2 or until the workpiece 3 has left the laser region.

- 5 The workpiece can, for example, be fashioned as normal printed circuit board wherein individual regions must be especially finely structured. However, it is also possible, for example, to employ a conductive film instead of the printed circuit board and to pull this past between the two deflection device 6 in steps. The
- 10 workpieces 3 can also, for example, be fashioned as relatively small chip carriers and be fixed in a plurality of receptacles of a workpiece carrier that is provided with corresponding clearances for the passage of laser beams. In this case, the carrier 4 seizes the workpiece carrier and guides it such that the individual workpieces successively proceed into the laser beam region.

Patent Claims

1. Apparatus for the laser processing of workpieces (3) with processing surfaces lying diametrically opposite one another, particularly of plate-like interconnect carriers laminated on both sides, characterized in that

- 5 the apparatus comprises two laser units (2) directed toward one another; the workpieces can be fixed to a movable carrier (4) and can be placed between the two laser unit (2); and in that the two laser units (2) can be simultaneously operated.

2. Apparatus according to claim 1, characterized in that the two laser units
10 are provided with an internal beam deflection (for example, 5) that covers the region of the workpiece (3) to be respectively processed.

Abstract**APPARATUS FOR THE LASER PROCESSING OF WORKPIECES**

The workpieces [sic] (3) fashioned, for example, as printed circuit board is moved between two laser units whose emitted laser beams are directed opposite one another.

As a result thereof, two sides of the workpiece 3 can be congruently processed simultaneously with short dwell time.

Figure 1

Figure 1

German Language Declaration

Prior foreign applications
Priorität beansprucht

Priority Claimed

198 31 343.8 Germany 13 July 1998
(Number) (Country) (Day Month Year Filed)
(Nummer) (Land) (Tag Monat Jahr eingereicht)

☒ ☐
Yes No
Ja Nein

(Number) (Country) (Day Month Year Filed)
(Nummer) (Land) (Tag Monat Jahr eingereicht)

☐ ☐
Yes No
Ja Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122 I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

(Application Serial No.)
(Anmeldeseriennummer)

(Filing Date)
(Anmeldedatum)

(Status)
(patentiert, anhängig,
aufgegeben)

(Status)
(patented, pending,
abandoned)

(Application Serial No.)
(Anmeldeseriennummer)

(Filing Date)
(Anmeldedatum)

(Status)
(patentiert, anhängig,
aufgegeben)

(Status)
(patented, pending,
abandoned)

Ich erkläre hiermit, dass alle von mir in der vorliegenden Erklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und dass ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, dass wissentlich und vorsätzlich falsche Angaben gemäss Paragraph 1001, Absatz 18 der Zivilprozessordnung der Vereinigten Staaten von Amerika mit Geldstrafe belegt und/oder Gefängnis bestraft werden koennen, und dass derartig wissentlich und vorsätzlich falsche Angaben die Gültigkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

- 1 -

IN THE UNITED STATES ELECTED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

"REQUEST FOR APPROVAL OF DRAWING CHANGE"

5 APPLICANT: Bernd-Friedrich SCHOLL et al.

SERIAL NO.: EXAMINER:

FILING DATE: ART UNIT:

INTERNATIONAL APPLICATION NO.: PCT/DE99/01935

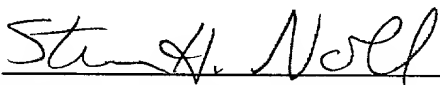
INTERNATIONAL FILING DATE: 1 July 1999

10 INVENTION: DEVICE FOR THE LASER PROCESSING OF
WORKPIECES

Hon. Assistant Commissioner for Patents
Box PCT
Washington D.C. 20231

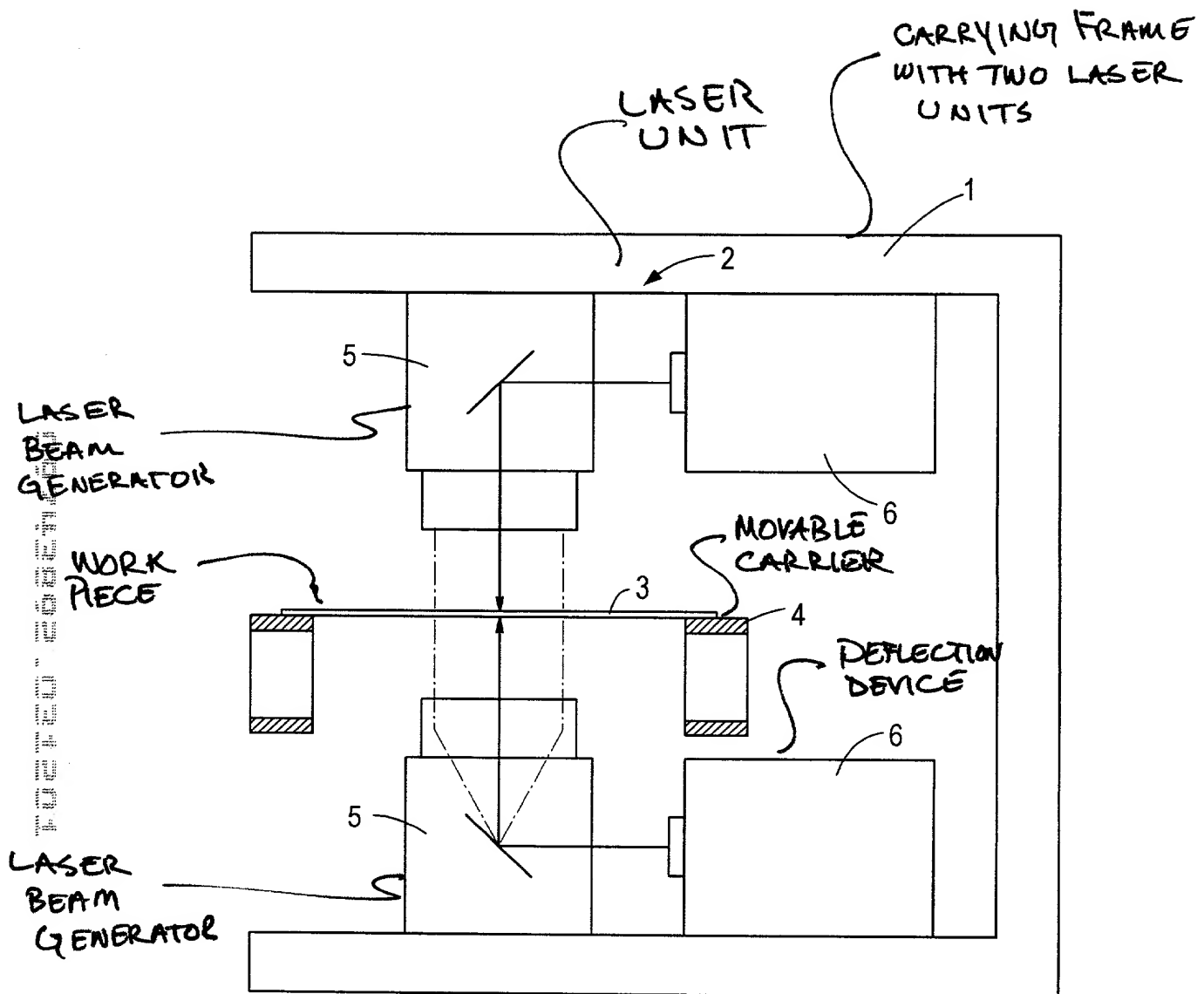
15 SIR:
Applicant herewith requests approval of the drawing change in the Figure
as shown on the drawing copy marked in red attached hereto.

Respectfully submitted,

20 
Steven H. Noll (reg. no. 28,982)
Schiff Hardin & Waite
Patent Department
6600 Sears Tower
Chicago, Illinois 60606
25 Telephone: 312-258-5790

ATTORNEY FOR APPLICANT

1/1



M.H.

PCTWELTORGANISATION FÜR GEISTIGES EIGENTUM
Internationales BüroINTERNATIONALE ANMELDUNG VERÖFFENTLICHT NACH DEM VERTRAG ÜBER DIE
INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT)(51) Internationale Patentklassifikation ⁷ :

B23K 26/08

A1

(11) Internationale Veröffentlichungsnummer: WO 00/03831

(43) Internationales
Veröffentlichungsdatum:

27. Januar 2000 (27.01.00)

(21) Internationales Aktenzeichen: PCT/DE99/01935

(22) Internationales Anmeldedatum: 1. Juli 1999 (01.07.99)

(30) Prioritätsdaten:
198 31 343.8

13. Juli 1998 (13.07.98)

DE

(71) Anmelder (für alle Bestimmungsstaaten ausser US): SIEMENS
AKTIENGESELLSCHAFT [DE/DE]; Wittelsbacherplatz 2,
D-80333 München (DE).

(72) Erfinder; und

(75) Erfinder/Anmelder (nur für US): SCHOLL, Bernd-Friedrich
[DE/DE]; Waldenbucher Strasse 43, D-70771 Echterdingen (DE). MÜLLER, Lothar [DE/DE]; Wolfgangstrasse
35, D-69124 Heidelberg (DE). JUNG, Werner [DE/DE];
Unterer Hagweg 34, D-68753 Waghäusel (DE). DIET-
RICH, Stefan [DE/DE]; Händelstrasse 28, D-76185 Karl-
ruhe (DE).(74) Gemeinsamer Vertreter: SIEMENS AKTIENGE-
SELLSCHAFT; Postfach 22 16 34, D-80506 München
(DE).(81) Bestimmungsstaaten: CN, JP, KR, US, europäisches Patent
(AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT,
LU, MC, NL, PT, SE).

Veröffentlicht

Mit internationalem Recherchenbericht.

(54) Title: DEVICE FOR THE LASER PROCESSING OF WORKPIECES

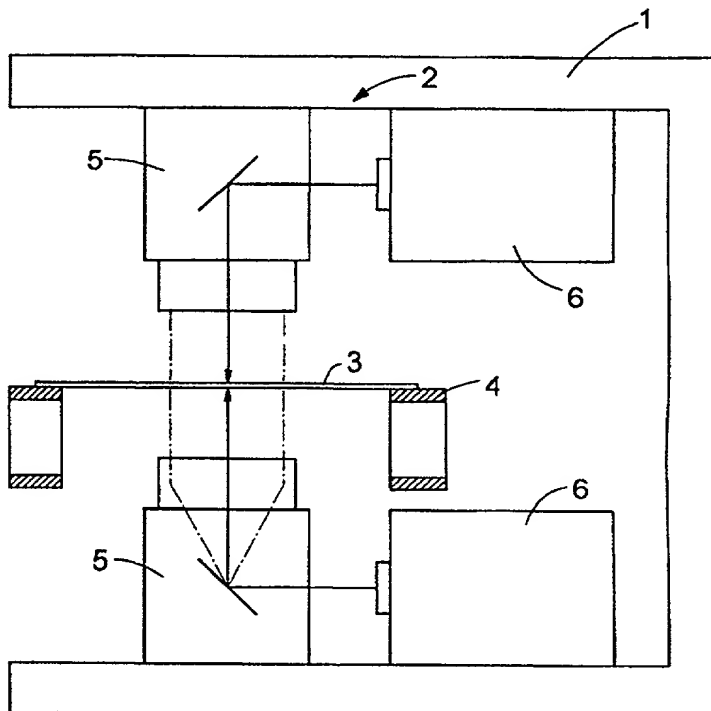
(54) Bezeichnung: VORRICHTUNG ZUM LASERBEARBEITEN VON WERKSTÜCKEN

(57) Abstract

According to the invention, a workpiece (3) embodied, for example, as a printed circuit board, is displaced between two laser units (2) which emit laser beams that are directed towards each other. In this way two sides of the workpiece (3) can be processed simultaneously in coincidence and in a short space of time.

(57) Zusammenfassung

Das z.B. als Leiterplatte ausgebildete Werkstück (3) wird zwischen zwei Lasereinheiten (2) verfahren, deren austretende Laserstrahlen gegeneinander gerichtet sind. Dadurch können gleichzeitig zwei Seiten des Werkstücks (3) mit kurzer Aufenthaltsdauer deckungsgleich bearbeitet werden.



DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION
ERKLÄRUNG FÜR PATENTANMELDUNGEN MIT VOLLMACHT
German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

dass mein Wohnsitz, meine Postanschrift, und meine Staatsangehörigkeit den im Nachstehenden nach meinem Namen aufgeführten Angaben entsprechen,

dass ich, nach bestem Wissen der ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein Name angegeben ist) oder ein ursprünglicher, erster und Miterfinder (falls nachstehend mehrere Namen aufgeführt sind) des Gegenstandes bin, für des dieser Antrag gestellt wird und für den ein Patent beantragt wird für die Erfindung mit dem Titel:

VORRICHTUNG ZUM LASERBEARBEITEN VON
WERKSTÜCKEN

deren Beschreibung

(zutreffendes ankreuzen)

☐ hier beigelegt ist.

☒ am 1 July 1999 als

PCT internationale Anmeldung

PCT Anwendungsnummer PCT/DE99/01935

eingereicht wurde und am

abgeändert wurde (falls tatsächlich abgeändert)

Ich bestätige hiermit, dass ich den Inhalt der obigen Patentanmeldung einschliesslich der Ansprüche durchgesehen und verstanden habe, die eventuell durch einen Zusatzantrag wie oben erwähnt abgeändert wurde.

Ich erkenne meine Pflicht zur Offenbarung irgendwelcher Informationen, die für die Prüfung der vorliegenden Anmeldung in Einklang mit Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) von Wichtigkeit sind, an.

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Abschnitt 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 119 aller unten angegebenen Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde, und habe auch alle Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde nachstehend gekennzeichnet, die ein Anmeldedatum haben, das vor dem Anmeldedatum der Anmeldung liegt, für die Priorität beansprucht wird.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

DEVICE FOR THE LASER PROCESSING
OF WORKPIECES

the specification of which

(check one)

☐ is attached hereto

☒ was filed on _____ as

PCT international application

PCT Application No. _____

and was amended on _____

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

German Language Declaration

VERTRETUNGSVOLLMACHT: Als benannter Erfinder beauftrage ich hiermit den nachstehend benannten Patentanwalt (oder die nachstehend benannten Patentanwälte) und/oder Patent-Agenten mit der Verfolgung der vorliegenden Patentanmeldung sowie mit der Abwicklung aller damit verbundenen Geschäfte vor dem Patent- und Warenzeichenamt: (Name und Registrationsnummer anführen)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

And I hereby appoint Messrs. John D. Simpson (Registration No. 19,842), Steven H. Noll (28,982), Brett A. Valiquet (27,841), James D. Hobart (24,149), Melvin A. Robinson (31,870), and Mark Bergner (45,877)), all members of the firm of Schiff Hardin and Waite.

Telefongespräche bitte richten an:
(Name und Telefonnummer)

Direct Telephone Calls to: (name and telephone number)

312/258-5785

Postanschrift:

Send Correspondence to:

SCHIFF HARDIN & WAITE
Patent Department
6600 Sears Tower, Chicago, Illinois 60606

Voller Name des einzigen oder ursprünglichen Erfinders: Bernd-Friedrich SCHOLL		Full name of sole or first inventor:	
Unterschrift des Erfinders <i>B. Scholl</i>	Datum <i>24.1.01</i>	Inventor's signature	Date
Wohnsitz Echterdingen, Germany		Residence	
Staatsangehörigkeit German		Citizenship	
Postanschrift Waldenbucher Str. 43		Post Office Address	
D-70771 Echterdingen, GERMANY			

(Bitte entsprechende Informationen und Unterschriften im Falle von weiteren Miterfindern angeben).

(Supply similar information and signature for subsequent joint inventors).

Voller Name des zweiten Miterfinders (falls zutreffend): Lothar MÜLLER		Full name of second joint inventor, if any:	
Unterschrift des Erfinders <i>Lothar Müller</i>	Datum <i>22.01</i>	Inventor's signature	Date
Wohnsitz Heidelberg, Germany <i>DEX</i>		Residence	
Staatsangehörigkeit German		Citizenship	
Postanschrift Wolfgangstr. 35		Post Office Address	
D-69124 Heidelberg, Germany			
Voller Name des dritten Miterfinders (falls zutreffend): Werner JUNG		Full name of third joint inventor, if any:	
Unterschrift des Erfinders <i>Werner Jung</i>	Datum <i>06.02.01</i>	Inventor's signature	Date
Wohnsitz Waghäusel, Germany <i>DEX</i>		Residence	
Staatsangehörigkeit German		Citizenship	
Postanschrift Unterer Hagweg 34		Post Office Address	
D-68753 Waghäusel, Germany			
Voller Name des vierten Miterfinders (falls zutreffend): Stefan DIETRICH		Full name of fourth joint inventor, if any:	
Unterschrift des Erfinders <i>Stefan Dietrich</i>	Datum <i>08.02.01</i>	Inventor's signature	Date
Wohnsitz Karlsruhe, Germany <i>DEX</i>		Residence	
Staatsangehörigkeit German		Citizenship	
Postanschrift Händelstr. 28 D-76185 Karlsruhe, Germany		Post Office Address	

(Bitte entsprechende Informationen und Unterschriften im Falle von zweiten und weiteren Miterfindern angeben).

(Supply similar information and signature for second and subsequent joint inventors).